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the earlier ones. The dark mud rocks, therefore, are the shore equivalents in the east of the highest Oriskany limestones of the west, and not an independent unit in the time scale.*

But I must not carry my discussions further, since my time, unfortunately, is limited. I hope you agree with me—those of you, I mean, who are not stratigraphers, for stratigraphers require no conversion at my hands—that the study of the physical characters of the strata, even of the thickness of sections, gives, when rightly attacked, a view of the history of the earth, full of dramatic intensity, and that only by a careful study of such physical characters can we arrive at a true interpretation of the history of the earth.

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EXTIRPATION AND REPLANTATION OF THE THYROID GLAND WITH REVERSAL OF THE CIRCULATION.

WE have successfully removed and then replanted a thyroid gland with reversal of the circulation on a dog.

A transplantation of the thyroid with anastomosis of its vessels to a suitable artery and vein was previously made in 1902,¹ but no permanent successful result was obtained, owing to the obliteration of the vessels by clots and the subsequent development of gangrene. A careful investigation of the literature has revealed no other mention of similar experiments having been performed hitherto. The present observation is also the first successful replantation of a gland with reversal of the circulation.

Summary of the Technique and of the Observation on the Results of the Operation.—The right thyroid gland of about a 20 K. dog having been dissected, all its vessels were ligated, except the superior thyroid artery and vein, which were cut near the carotid artery

*A more detailed discussion of this problem appears in my forthcoming bulletin on the Schoharie Valley (Bull. N. Y. State Museum).

¹A. Carrel, 'La Technique opératoire des anastomoses vasculaires et la transplantation des viscères,' *Lyon Medical*, 1902. 'Les anastomoses vasculaires, leur technique opératoire et leurs indications,' 2e Congrès des Médecins de langue française de l'Amérique du Nord, Montreal, 1904.

and the internal jugular vein. The gland was then extirpated and put in a glass of isotonic sodium chloride solution.

After a few minutes, the thyroid gland was placed in the wound in the neck, and the peripheral end of the thyroid artery was united to the central end of the thyroid vein, and the peripheral end of the thyroid vein to the central end of the thyroid artery.

The circulation was reestablished about half an hour after the extirpation. The circulation through the gland was in a direction reverse to the normal. The red blood entered through the thyroid vein, and the dark blood flowed from the gland to the jugular vein through the thyroid artery. The hue of the gland was normal, and the circulation very active.

Eleven days after the operation the wound was opened and the anterior portion of the gland directly observed. The gland was somewhat enlarged, but its hue and consistency were normal.

Twenty-five days after the operation it was again directly observed. It still appeared enlarged, and in hue and consistency the same as before.

Thirty-two days after the operation, the wound being almost closed, it was not possible to examine the gland directly. But by pressing it between the fingers through the skin, its systolic expansion was easily detected.

At the present time forty seven days after the operation the animal is alive and in good condition. The replanted gland appears to be practically normal, being only slightly enlarged.

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EXHIBITION OF EARLY WORKS ON NATURAL HISTORY.

Few people are aware that the Natural History Museum in Cromwell-road contains one of the finest and most complete libraries on natural history ever brought together. The collection had its origin in the several libraries attached to the departments of zoology, geology, mineralogy and botany while these were